AMENDMENT TO THE CLAIMS

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) ~~Method~~ A method for grafting a chemical compound to a predetermined region of a support substrate ~~(4)~~, comprising:

a) irradiating selectively the support substrate ~~(4)~~ with electromagnetic radiation and/or particle radiation in order to both define said predetermined region and to form a reactive functional group or a precursor thereof in said predetermined region of the support substrate; and

b) exposing the irradiated support substrate to said chemical compound or to a precursor thereof.

2. (currently amended) The ~~Method~~ method according to claim 1, ~~characterized in that~~ wherein the step of exposing is carried out simultaneously during the step of irradiating.

3. (currently amended) ~~Method~~ The method according to claim 1, ~~characterized in that~~ wherein the step of exposing is carried out successively after the step of irradiating.

4. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~,claim 1, wherein ~~characterized in that~~ the properties of the predetermined region are controlled in dependency of the parameters of the irradiating step.

5. (currently amended) ~~Method~~ The method according to claim 4, ~~characterized in that~~wherein as properties of the predetermined region are considered at least one of the group comprising physical properties, chemical properties, height, penetration depth and spatial resolution.

6. (currently amended) ~~Method~~ The method according to claim ~~4 or 5~~, ~~characterized in that~~ wherein as parameter of the irradiating step are considered at least one of the group comprising type of radiation, energy of radiation, total dose of radiation and irradiation atmosphere.

7. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims,~~claim 1, wherein ~~characterized in that~~ the support substrate ~~(2)~~ is chosen in the dependency of at least one property of the group containing desired reactive functional group or a precursor thereof, desired property of the support substrate and desired property of the non-irradiated regions.

8. (currently amended) ~~Method~~ The method according to claim 7, ~~characterized in that~~ wherein the support substrate is of organic or inorganic type and/or of reactive or inert type and/or hydrophilic or hydrophobic type.

9. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims,~~ claim 1, wherein ~~characterized in that~~ the reactive functional group is at least one selected from the group comprising hydroperoxides, peroxides, or any type of radicals such as alkyl radical, oxy radical and peroxy radical.

10. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~claim 1, wherein ~~, characterized in that~~ UV or X-ray radiation is used as electromagnetical radiation.

11. (currently amended) ~~Method~~ The method according to claim 10, ~~characterized in that~~wherein interference lithography is used to generate the predefined regions of reactive functional groups.

12. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~claim 1, wherein ~~, characterized in that~~ an electron beam is used as a particle radiation.

13. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~claim 1, wherein ~~,characterized in that~~ the compound or the predecessor of the compound is an organic monomer that is applied in form of a gas comprising the monomer or a liquid comprising the monomer to the predetermined region.

14. (currently amended) ~~Method~~ The method according to claim 13, ~~characterized in that~~ wherein the monomer is a radically active monomer.

15. (currently amended) ~~Method~~ The method according to claim 13~~ or 14~~, ~~characterized in that~~ wherein the monomer is used as a pure liquid or is diluted with a solvent or an inert material and/or a mixture with one or more additional monomers.

16. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~claim 1, ~~characterized in that~~ wherein the predetermined regions formed in the shape of a three dimensional tube or channel.

17. (currently amended) ~~Method~~ The method according to ~~any of the preceding claims~~claim 1, wherein ~~characterized in that~~ the grafted material is detached from the support substrate or the support substrate is dissolved leading to free standing structures of the grafted material.

18. (cancelled)

19. (currently amended) A micro- or nanostructured material, comprising ~~of claim 18, characterized in that the~~a substrate comprising ~~is~~ a polymer and ~~the~~ a compound ~~is~~ comprising a polymer.

20. (currently amended) ~~A~~ The micro- or nanostructured material ~~of~~ according to claim ~~18 or~~ 19, ~~characterized in that the~~further comprising non-structured hydrophobic regions ~~are hydrophobic~~ and ~~the~~ hydrophobic modified grafted regions ~~are hydrophilic~~.

21. (currently amended) ~~A~~ The micro- or nanostructured material ~~of~~ according to claim 18~~ or 19~~, ~~characterized in that~~ wherien the non-structured regions are hydrophilic and the modified grafted regions are hydrophobic.

22. (currently amended) ~~A~~ The micro- or nanostructured material ~~of any of the preceding claims 18 to 21~~according to claim 19, wherein~~, characterized in that~~ the modified grafted regions comprises polymer brushes.

23. (currently amended) ~~A~~ The micro- or nanostructured material ~~of any of the preceding claims 18 to 22~~according to claim 19, wherein ~~, characterized in that~~ the compound is selected from the group comprising acrylic, vinyl and styrenic polymers.

24. (currently amended) ~~A~~ The micro- or nanostructured material ~~according to any of the preceding claims 18 to 23~~according to claim 19, ~~characterized in that~~wherein the

compound is selected from the group comprising polyacrylic acid and its salts, polymethacrylic acid and its salts, polymethylmethacrylate, polystyrene, sulfonated polystyrene and its salts, polyethylene, polytetrafluoroethylene, and polypropylene.

25. (currently amended) ~~A~~ The micro- or nanostructured material according to ~~any of the claims 18 to 24~~claim 19, wherein ~~, characterized in that~~ the compound has functional groups capable of selectively binding with chemical elements, functional groups or molecules present in a gaseous or liquid phase.

26. (currently amended) ~~A~~ The micro- or nanostructured material according to ~~any of the preceding claims 18 to 25~~claim 19, wherein ~~, characterized in that~~ the compound has functional groups selected from the group comprising amine, amide, thiol, hydroxy, carboxyl, carboxylic acid, or ester functional groups.

27. (currently amended) ~~A~~ The micro- or nanostructured material ~~to any of the preceding claims 18 to 26~~according to claim 19, wherein~~, characterized in that~~ the substrate is modified through its entire thickness.

28. (currently amended) ~~A~~ The micro- or nanostructured material ~~of any of the preceding claims 18 to 27~~according to claim 19, further comprising~~, characterized in that~~ a membrane is used for a separation, transport or conduction application.

29. (currently amended) ~~A~~ The micro- or nanostructured material ~~of~~ according to claim 28,
~~characterized in that~~ wherein the membrane is used in an electrochemical cell.

30. (currently amended) ~~A~~ The micro- or nanostructured material ~~of any of the preceding claims 18 to 29~~according to claim 19, wherein ~~, characterized in that~~ the substrate is a flexible polymer film.

31. (currently amended) ~~A~~ The micro- or nanostructured material ~~of~~ according to claim 30,
~~characterized in that~~ wherein the polymer film is selected from the group comprising PTFE, FEP, ETFE, PVDF, PE, and PP.

32. (cancelled).